

## ABSTRACT

Techniques are described for producing a signal having a desired frequency. The desired frequency can be produced to a very high precision, even when the desired frequency is very high. The techniques, in one example, represent an intermediate, otherwise non-  
5 available frequency, by dithering between two exact frequencies. Then, over some reasonably short timescale, the desired frequency is provided to high precision. Such precise frequency output may be used for, for example, measurement transmission and other uses. The techniques can be implemented in low-cost hardware, and may provide a precision of, for example,  $10^{-6}$  % for many frequencies.

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